AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-43. (canceled)

44. (Currently Amended) A tyre for a vehicle wheel, comprising:

a carcass structure;

a belt structure;

a tread band; and

a pair of sidewalls;

wherein the carcass structure comprises at least one carcass ply shaped in a substantially toroidal configuration,

wherein opposite lateral edges of the carcass structure are associated with respective bead wires,

wherein each bead wire is enclosed in a respective bead,

wherein the belt structure comprises:

at least one belt strip;

wherein the belt structure is disposed in a circumferentially external position relative to the carcass structure,

wherein the tread band is superimposed circumferentially on the belt structure,

wherein the tread band comprises:

a radially outer layer designed to contact the ground; and

a radially inner layer between the belt structure and the radially outer layer;

wherein the side walls are applied laterally on opposite sides relative to the carcass structure,

wherein the radially inner layer comprises a crosslinked elastomeric composition having a dynamic elastic modulus (E') at 23° C that is greater than or equal to 15 MPa and less than or equal to 20 MPa, and

wherein the crosslinked elastomeric composition comprises:

at least one diene elastomeric polymer; and

at least one layered inorganic material comprising an individual layer thickness greater than or equal to 0.01 nm and less than or equal to 30 nm..

45. (Previously presented) The tyre of claim 44, wherein the at least one layered inorganic material comprises an individual layer thickness greater than or equal to 0.05 nm and less than or equal to 15 nm.

46. (Cancelled)

47. (Cancelled)

48. (Previously presented) The tyre of claim 44, wherein the radially inner layer comprises a thickness of at least 10% with respect to a total thickness of the tread band.

49. (Previously presented) The tyre of claim 44, wherein the radially inner layer comprises a thickness greater than or equal to 20% and less than or equal to 70% with respect to a total thickness of the tread band.

50. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises greater than or equal to 1 phr and less than or equal to 120 phr of the at least one layered inorganic material.

51. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises greater than or equal to 5 phr and less than or equal to 80 phr of the at least one layered inorganic material.

52. (Previously presented) The tyre of claim 44, wherein the at least one layered inorganic material comprises one or more phyllosilicates.

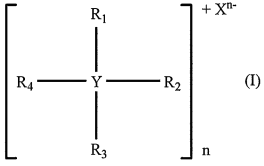
53. (Previously presented) The tyre of claim 44, wherein the at least one layered inorganic material comprises one or more of smectite, vermiculite, halloysite, and sericite.

54. (Previously presented) The tyre of claim 44, wherein the at least one layered inorganic material comprises one or more of montmorillonite, nontronite, beidellite, volkonskoite, hectorite, saponite, and sauconite.

55. (Previously presented) The tyre of claim 44, wherein the at least one layered inorganic material comprises montmorillonite.

56. (Previously presented) The tyre of claim 52, wherein the at least one layered inorganic material is surface-treated with a compatibilizer.

57. (Previously presented) The tyre of claim 56, wherein the compatibilizer is selected from quaternary ammonium or phosphonium salts having general formula (I):



(I)

wherein:

Y represents nitrogen or phosphorous;

R_1, R_2, R_3, and R_4, which may be identical or different, represent a linear or branched C_1-C_{20} alkyl or hydroxyalkyl group; a linear or branched C_1-C_{20} alkenyl or hydroxyalkenyl group; a group -R_5-SH or -R_5-NH, wherein R_5 represents a linear or

branched C_1-C_{20} alkylene group; a C_6-C_{18} aryl group; a C_7-C_{20} arylalkyl or alkylaryl group; a C_5-C_{18} cycloalkyl group, the cycloalkyl group possibly containing at least one hetero atom selected from oxygen, nitrogen, and/or sulfur;

X^{n-} represents an anion such as the chlorine ion, the sulphate ion, or the phosphate ion;

n represents 1, 2, or 3.

58. (Previously presented) The tyre of claim 44, wherein the at least one diene elastomeric polymer has a glass transition temperature (T_g) below 20° C.

59. (Previously presented) The tyre of claim 58, wherein the at least one diene elastomeric polymer comprises one or more of: cis-1,4-polyisoprene; 3,4-polyisoprene; polybutadiene; optionally halogenated isoprene/isobutene copolymers; 1,3-butadiene/acrylonitrile copolymers; styrene/1,3-butadiene copolymers; styrene/isoprene/1,3-butadiene copolymers; and styrene/1,3-butadiene/acrylonitrile copolymers.

60. (Previously presented) The tyre of claim 44, wherein the elastomeric composition comprises at least 10%-by-weight of natural rubber with respect to a total weight of the at least one diene elastomeric polymer.

61. (Previously presented) The tyre of claim 44, wherein the elastomeric composition comprises greater than or equal to 20%-by-weight of natural rubber and

less than or equal to 90%-by-weight of natural rubber with respect to a total weight of the at least one diene elastomeric polymer.

62. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

63. (Previously presented) The tyre of claim 62, wherein the at least one elastomeric polymer of one or more monoolefins comprises one or more of: ethylene/propylene copolymers (EPR) or ethylene/propylene/diene copolymers (EPDM); polyisobutene; butyl rubbers; and halobutyl rubbers.

64. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one carbon black filler.

65. (Previously presented) The tyre of claim 64, wherein the at least one carbon black filler has a surface area of not less than 20 m^2/g, as determined by hexadecyltrimethylammonium bromide ("CTAB") adsorption as described in ISO Standard 6810.

66. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one carbon black filler in an amount greater than or equal to 0.1 phr and less than or equal to 120 phr.

67. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one carbon black filler in an amount greater than or equal to 20 phr and less than or equal to 90 phr.

68. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one silane coupling agent.

69. (Previously presented) The tyre of claim 68, wherein the at least one silane coupling agent is selected from those having at least one hydrolizable silane group which may be identified by structural formula (II):

$$(R)_3Si\text{-}C_nH_{2n}\text{-}X \qquad (II)$$

in which the groups R, which may be identical or different, are selected from: alkyl, alkoxy or aryloxy groups or from halogen atoms, on condition that at least one of the groups R is an alkoxy or aryloxy group; n is an integer between 1 and 6 inclusive; X is a group selected from: nitroso, mercapto, amino, epoxide, vinyl, imide, chloro, and -$(S)_mC_nH_{2n}$-Si-$(R)_3$, in which m and n are integers between 1 and 6 inclusive and the groups R are defined as above.

70. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one silane coupling agent in an amount greater than or equal to 0.01 phr and less than or equal to 10 phr.

71. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one silane coupling agent in an amount greater than or equal to 0.5 phr and less than or equal to 5 phr.

72. (Previously presented) The tyre of claim 44, wherein the elastomeric composition further comprises at least one additional reinforcing filler in an amount greater than or equal to 0.1 phr and less than or equal to 120 phr.

73. (Previously presented) The tyre of claim 72, wherein the at least one additional reinforcing filler comprises silica.

74. (Previously presented) The tyre of claim 73, wherein the elastomeric composition further comprises at least one silane coupling agent.

75. (Previously presented) The tyre of claim 44, wherein the radially outer layer is formed by a crosslinked elastomeric composition having a dynamic elastic modulus (E') at 0° C that is greater than or equal to 5 MPa and less than or equal to 15 MPa.

76. (Previously presented) The tyre of claim 44, wherein the radially outer layer is formed by a crosslinked elastomeric composition having a dynamic elastic modulus (E') at 0° C that is greater than or equal to 8 MPa and less than or equal to 10 MPa.

77. (Currently Amended) A process for producing a tyre for a vehicle wheel, the process comprising:

manufacturing the tyre by assembling at least one carcass ply, a belt structure, and a tread band;

subjecting the tyre to moulding in a cavity formed in a vulcanization mould; and

subjecting the tyre to crosslinking by heating;

wherein the belt structure is disposed in a circumferentially outer position with respect to the at least one carcass ply,

wherein the tread band is disposed in a circumferentially outer position with respect to the belt structure,

wherein the tread band comprises:

a radially outer layer designed to contact the ground; and

a radially inner layer between the belt structure and the radially outer layer;

wherein the radially inner layer comprises a crosslinkable elastomeric composition having a dynamic elastic modulus (E') at 23° C that is greater than or equal to 15 MPa and less than or equal to 20 MPa, and

wherein the elastomeric composition comprises:

at least one diene elastomeric polymer; and

at least one layered inorganic material comprising an individual layer thickness greater than or equal to 0.01 nm and less than or equal to 30 nm.

78. (Previously presented) The process of claim 77, wherein the at least one layered inorganic material comprises an individual layer thickness greater than or equal to 0.05 nm and less than or equal to 15 nm.

79. (Previously presented) The process of claim 77, wherein the radially inner layer is obtained by winding at least one ribbon strip of the elastomeric composition in side-by-side coils.

80. (Previously presented) The process of claim 79, wherein the at least one layered inorganic material comprises an individual layer thickness greater than or equal to 0.05 nm and less than or equal to 15 nm.

81. (Previously presented) The process of claim 77, wherein the elastomeric composition further comprises greater than or equal to 1 phr and less than or equal to 120 phr of the at least one layered inorganic material.

82. (Previously presented) The process of claim 77, wherein the at least one layered inorganic material comprises one or more phyllosilicates.

83. (Previously presented) The process of claim 77, wherein the at least one diene elastomeric polymer has a glass transition temperature (T_g) below 20° C.

84. (Previously presented) The process of claim 77, wherein the elastomeric composition further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

85. (Previously presented) The process of claim 77, wherein the elastomeric composition further comprises at least one carbon black filler.

86. (Previously presented) The process of claim 77, wherein the elastomeric composition further comprises at least one silane coupling agent.

87. (Previously presented) The process of claim 77, wherein the elastomeric composition further comprises at least one additional reinforcing filler in an amount greater than or equal to 0.1 phr and less than or equal to 120 phr.

88. (Previously presented) The process of claim 87, wherein the at least one additional reinforcing filler comprises silica.

89. (Previously presented) The process of claim 88, wherein the elastomeric composition further comprises at least one silane coupling agent.